

CLAIMS

We claim:

1. A method for consolidating aggregate material comprising:
introducing a reaction composition into aggregate material; and
allowing the composition to react and form a polymer;
wherein the reaction composition comprises:
polymeric MDI, and a B-Side component comprising between about 35 weight % to about 45 weight % of an amine based polyether polyol, about 15 weight % to about 35 weight % polyglycol, and about 20 weight % to about 45 weight % 2,2,4-trimethyl-1,2, pentanediol diisobutyrate.
2. The method of claim 1, wherein the composition further comprises an organic tin catalyst.
3. The method of claim 1, wherein the composition further comprises an amine catalyst.
4. The method of claim 1, wherein the composition further comprise water.
5. The method of claim 1, wherein the composition further comprises hydrofluorocarbon blowing agent.
6. The method of claim 1, wherein the composition further comprises hydrocarbon blowing agent.
7. The method of claim 1, wherein the composition further comprises a silicone based surfactant.
8. The method of claim 1, wherein the polymer comprises a polyurethane foam.
9. The method of claim 1, wherein the polymer comprises a polyurethane foam having a density of between about 2 and about 12 pounds per cubic foot.

10. The method of claim 1, wherein the polymer comprises an elastomeric polymer.
11. The method of claim 1, wherein the isocyanate comprises an isocyanate prepolymer.
12. The method of claim 1, wherein the composition is introduced below ground.
13. A method for consolidating aggregate material, comprising:
introducing a reaction composition comprising polyol, isocyanate, and an ester into aggregate material; and
allowing the composition to react and form a polymer.
14. The method of claim 13, wherein the composition further comprises polyglycol.
15. The method of claim 13, wherein the polyol comprises an amine based polyether polyol.
16. The method of claim 13, wherein the isocyanate comprises polymeric MDI.
17. The method of claim 13, wherein the ester comprises 2,2,4-trimethyl-1,2-pentanediol diisobutyrate.
18. The method of claim 13, wherein the polymer comprises a polyurethane foam.
19. The method of claim 13, wherein the polymer comprises an elastomeric polymer.
20. The method of claim 13, wherein the composition is introduced below ground.

21. A reaction composition for consolidating aggregate, comprising:
 - an A-side component comprising polymeric MDI; and
 - a B-side component comprising polymeric MDI, and a B-Side component comprising between about 35 weight % to about 45 weight % of an amine based polyether polyol, about 15 weight % to about 35 weight % of polyglycol, and about 20 weight % to about 45 weight % of 2,2,4-trimethyl-1,2, pentanediol diisobutyrate.